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WE CLAIM:

1. An organized array of metal clusters, comprising:
monodispersed, ligand-stabilized metal clusters having metal-cluster radiuses of
5 from about 0.7 nm to about 1.8 nm, the metal being selected from the group consisting
of Ag, Au, Pt, Pd and mixtures thereof;
a linear, biomolecular scaffold, the metal clusters being bonded to the scaffold;
and
a substrate, the scaffold being coupled to the substrate at predetermined
10 positions to form organized, one-dimensional arrays that are electrically isolated from
one another and having a linear increase in current above a threshold in applied voltage.
2. The array according to claim 1 wherein the scaffold comprises molecules
selected from the group consisting of polynucleotides, polypeptides, and mixtures
15 thereof.
3. The array according to claim 2 wherein the scaffold comprises
polypeptides capable of forming α helices.